

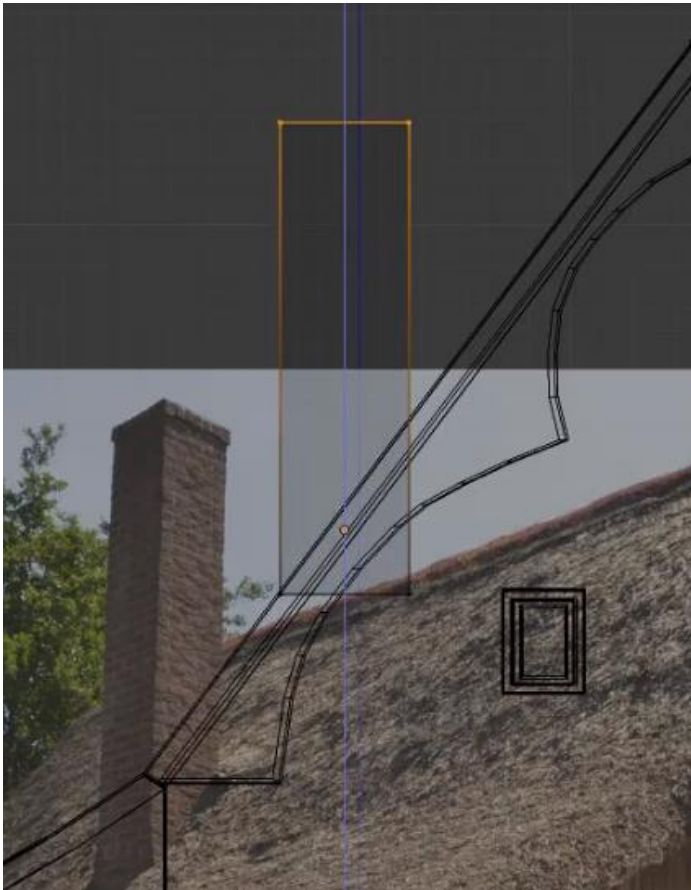
Chapter 4, lesson 58, Making a chimney

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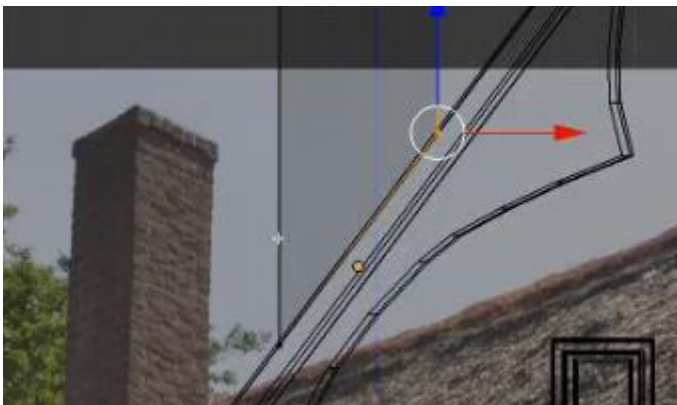
In this lesson we will be creating the chimney. If we look at the reference image we will see that it involves some basic modelling and texturing. Let's get started.

We start by adding a cube through the add menu or "**shift+a**" in the 3D viewport. Drag the cube into place from the front view in object mode so that our origin point ends up close to the base of the chimney. Then go to edit mode and scale the cube to roughly fit the size compared to the base building. Also keep the reference in mind. We will stay on the first layer while modelling so that we can get the scaling compared to our building correct.

Take the top four vertices and move them upwards as to create the basic chimney.



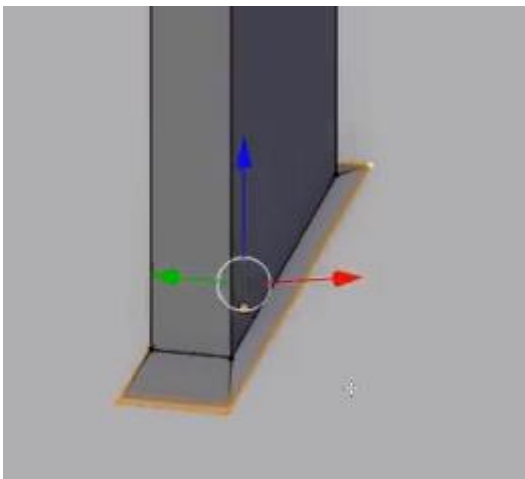
Then from the front view, select the two vertices on the right side and drag them upwards to align with the roof.



From here move the chimney up a bit so that we can extrude a base for the chimney. Hit “e” to extrude and then scale this extrusion with “s”.



Adjust the extruded base so that it is slightly intersecting with the roof and not floating above it. Then adjust the width of the extrusion in the Y direction by using “s” followed by “y”. If the adjustment is not fine enough hold “shift” to make smaller adjustments.

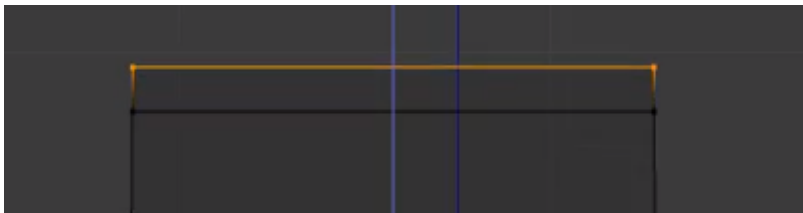


Doing this will help us blend the transition from the chimney into the roof of the building in a more natural way.

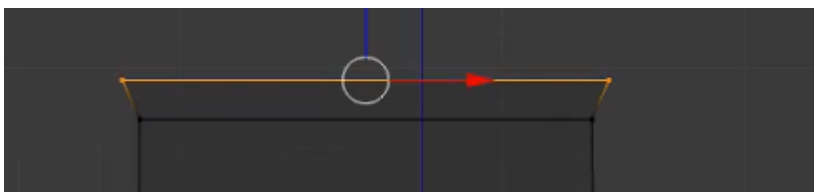
Now we will scale down the top of the chimney slightly. Select the top four vertices and scale them in slightly.



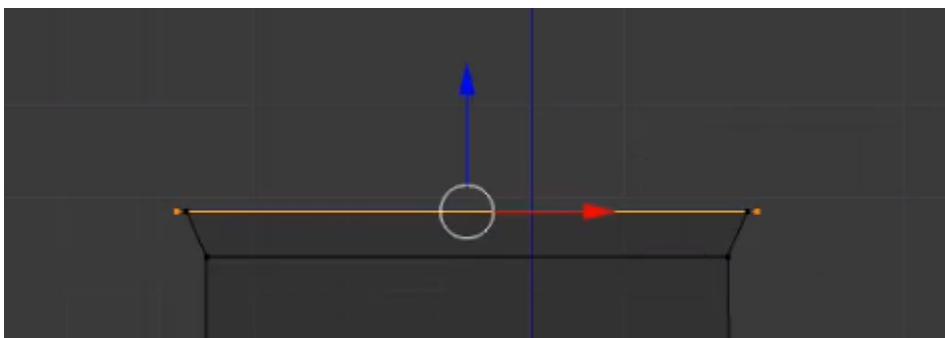
Let's finalize the top geometry of the chimney. Start by making a small extrusion at the top.



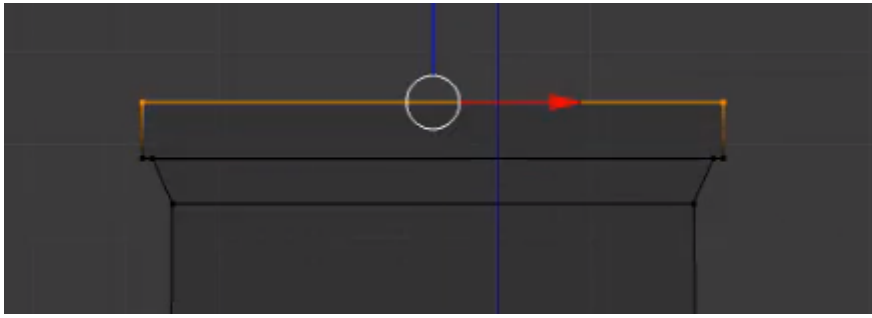
Scale this out a bit.



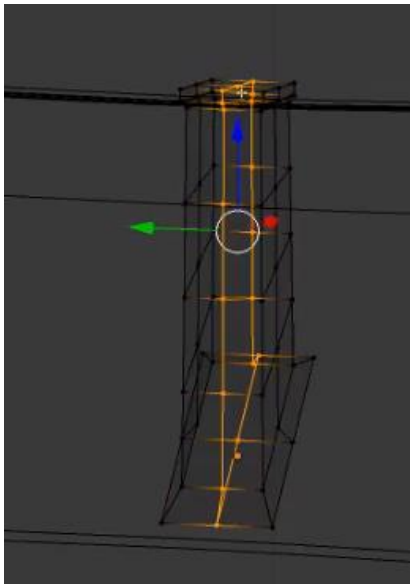
Extrude again and just scale this extrusion without moving it in the Z direction.



Now make one final extrusion and move it up in the Z direction to end up with this shape.



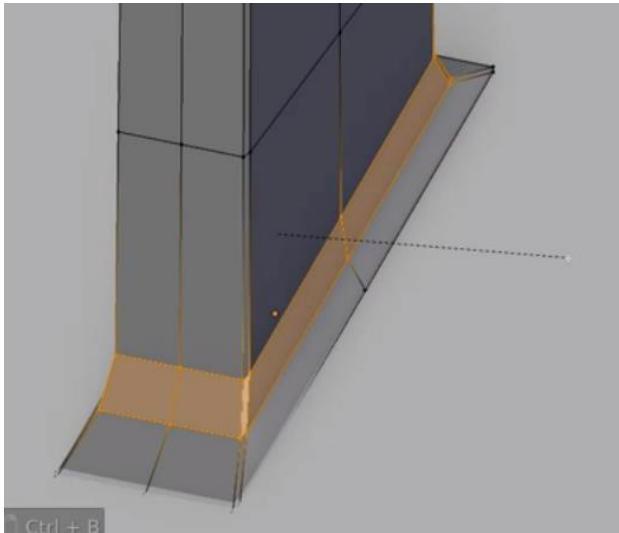
Add some extra edge loops around the chimney and along the front and side using “**ctrl+r**”. Scroll the mouse to add three edge loops around and just add a single loop from top to bottom on each side.



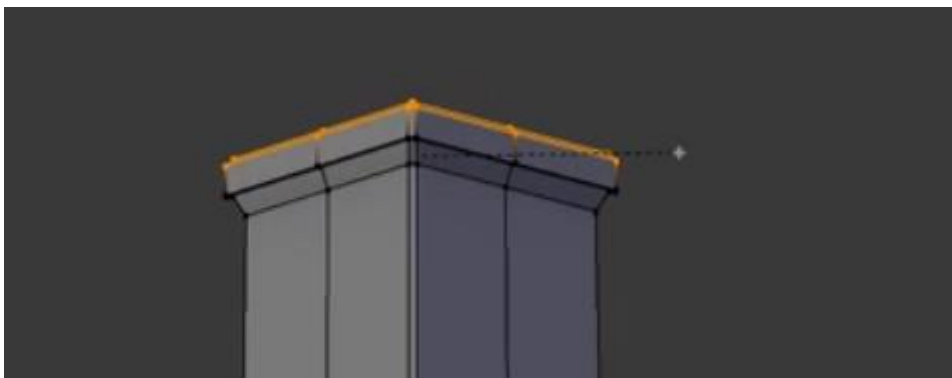
Deselect everything. Hold “alt” to select the edge of the chimney. We will now add a bevel to either side. Use “**ctrl+b**” to access the bevel tool. You can do this on either corner one by one or select them all at once and bevel once. The benefit of selecting them one by one is that you get the more handmade feel since they will vary a bit. You may not see it now but in the final render there is a difference when all these little imperfections add up.

If you are experiencing problem with the bevel, here is a reminder to apply the scale of the object. Go to object mode and hit “**ctrl+a**” and select scale to reset it.

Now bevel between the base of the chimney and the chimney itself. Make this bevel a bit larger and scroll the mouse wheel to add a cut in between.



Lastly bevel the top slightly so that the sunlight can be caught and reflected from that area.

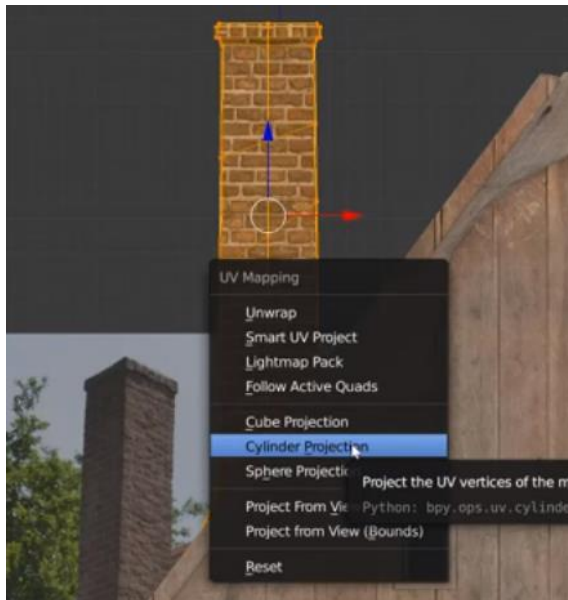


This concludes the modelling and we will now move into texturing. We will start with the material that we had at the base of the building and we will adjust it to add some varying colors and plaster to it.

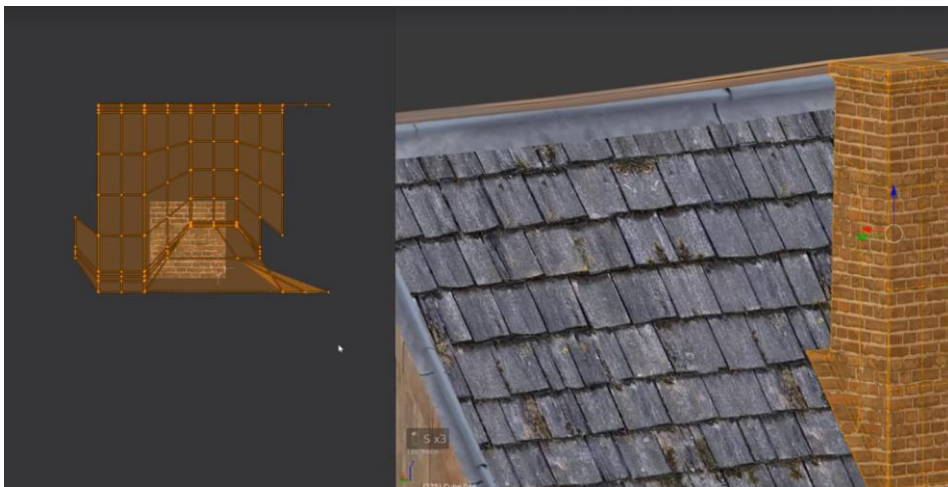
While the chimney is selected in object mode go to the materials tab. Click “new” and find the brick material. Hit the number two new to its name to create a new copy of the material that we can alter.



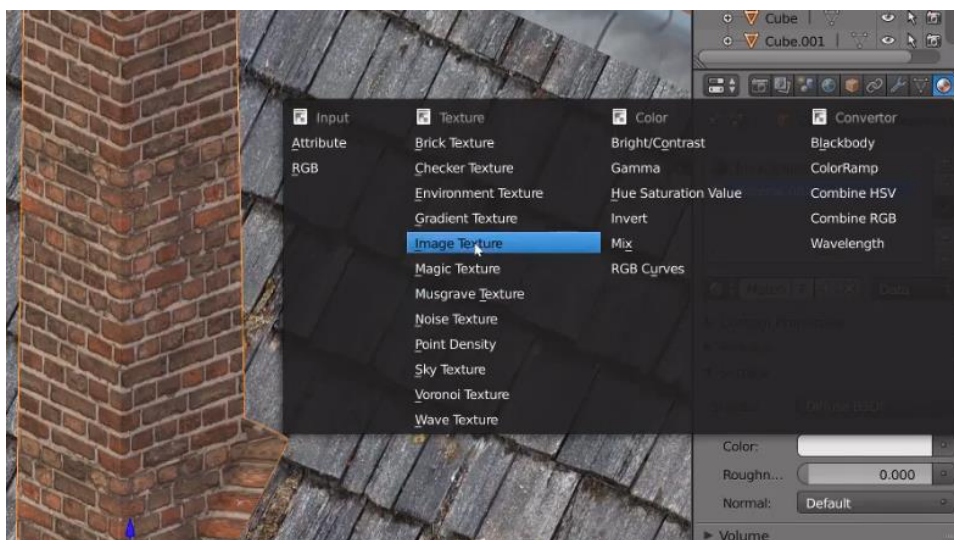
Rename the material to “brick_chimney”. We will now UV-unwrap the chimney. Go to edit mode, select the chimney and hit “U”. Select “cylinder projection”.



From here, scale the UV map so that the bricks get a realistic size.



The bricks are in place and we will turn our attention to the bottom part of the chimney. Go to the material panel and add a new material. Click the dot icon next to the color picker and choose image texture. We will now browse for a new texture to be used at the bottom of the chimney.



We will use the texture called “sealing_diff.png” that can be found in the course files.

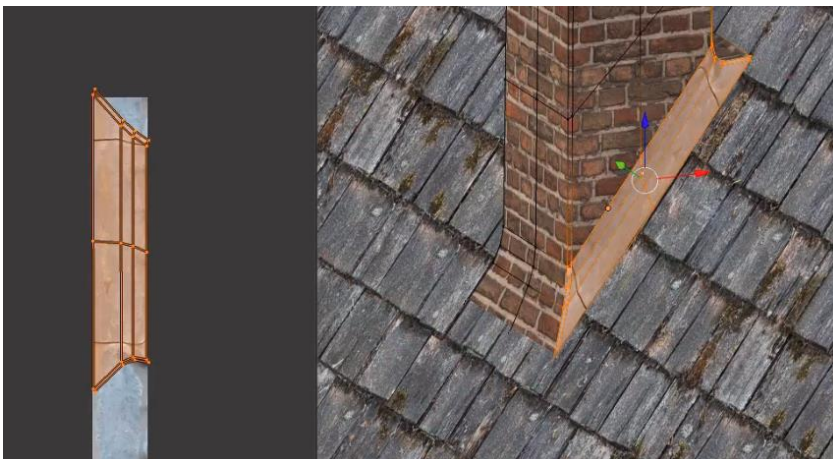


Hey, what is this guy doing here?!

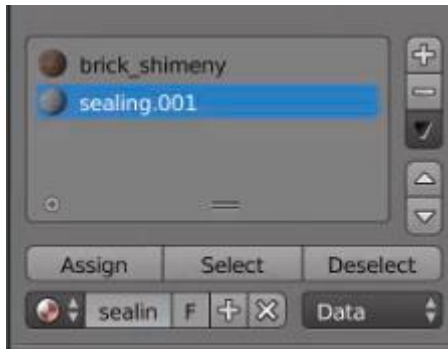
No matter. Select one of the bottom sides of the chimney. We will adjust the UV map of this part. Pick a viewing angle like the one in the image below and use project from view. Then switch to the “sealing_diff.png” image in the uv/image editor and scale the texture to fit the image



Assign the material that we created to these selected faces in the material settings. When it is scaled and rotated it should look like this.



Call the material “sealing_2”.

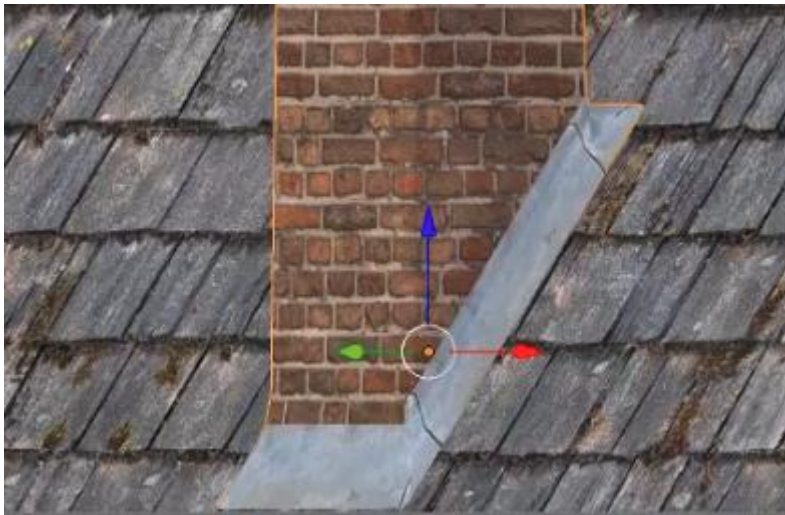


Continue around and do the same for all the sides.

- Select faces
- Project from view
- Scale and rotate to fit the texture
- Hit assign while the sealing.001 material is selected in the material tab and the correct faces are selected.

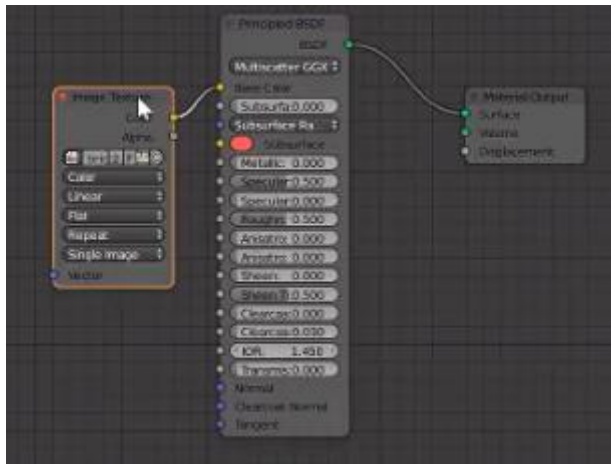
What we are doing here can be considered a quick hack. But sometimes that is the best way to go to keep your motivation high and for the project to be finished. The battle is to know what can be done in the quick and dirty way and what needs to be carefully thought out. Will the piece drag attention or not? Sometimes this question won't be answered until we are close to our final render and sometimes we can see it much earlier. We need to stay adaptive and don't attach to much emotion to our piece or it may hurt us in the end.

When we are done it will look something like this.

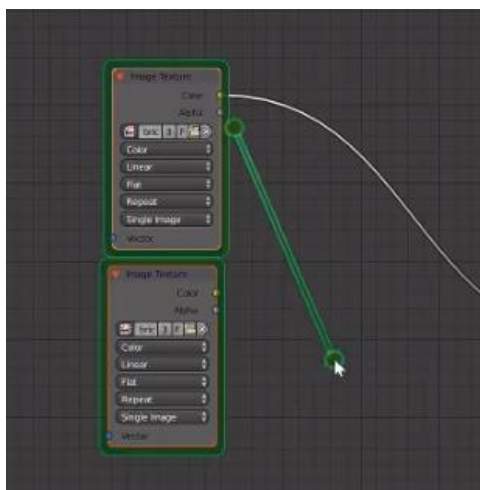


We will now start to work on the bricks material to make it fit the chimney better. Replace the uv/image editor with a node editor and select the “brick_shimeny” material.

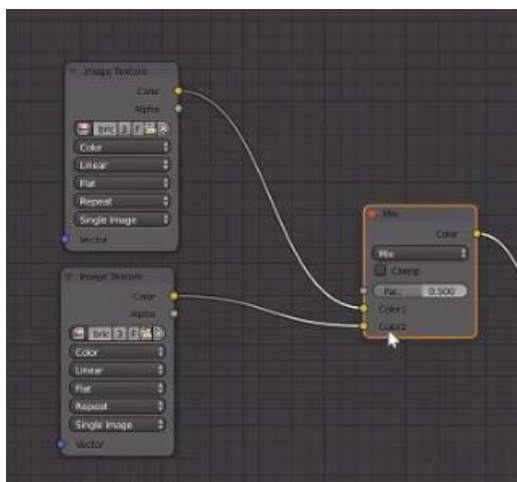
Start by deleting the diffuse node between the image texture and the material output node. Replace it with the principled shader node. Attach its output to the surface input of the material output node and the image texture color output to the principled shaders base color input.



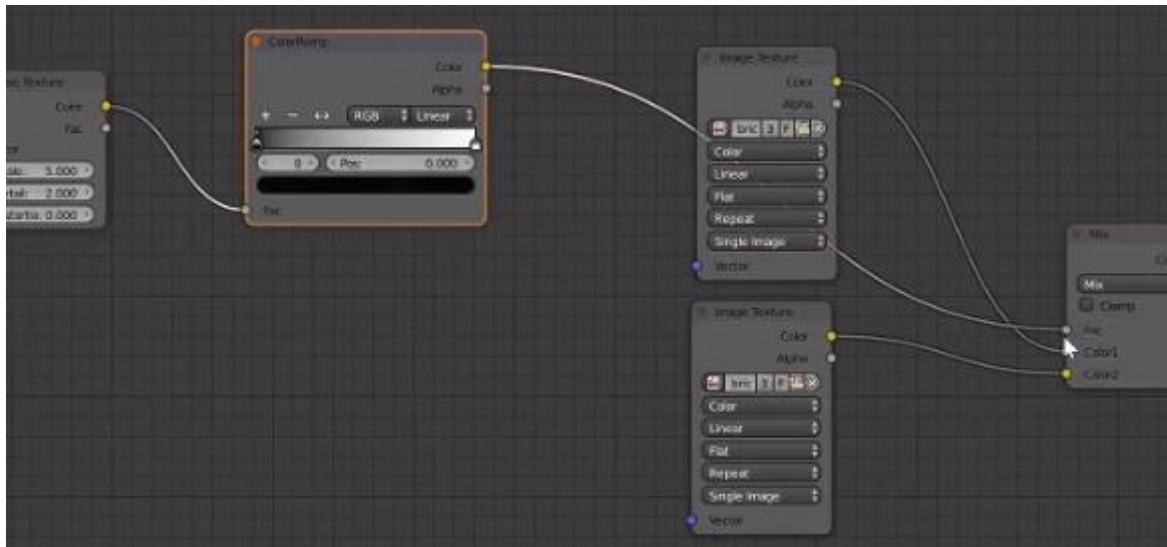
Duplicate the image texture with “shift+d” then with the node wrangler addon enabled hold alt while clicking and dragging between the image texture nodes to add a mix node.



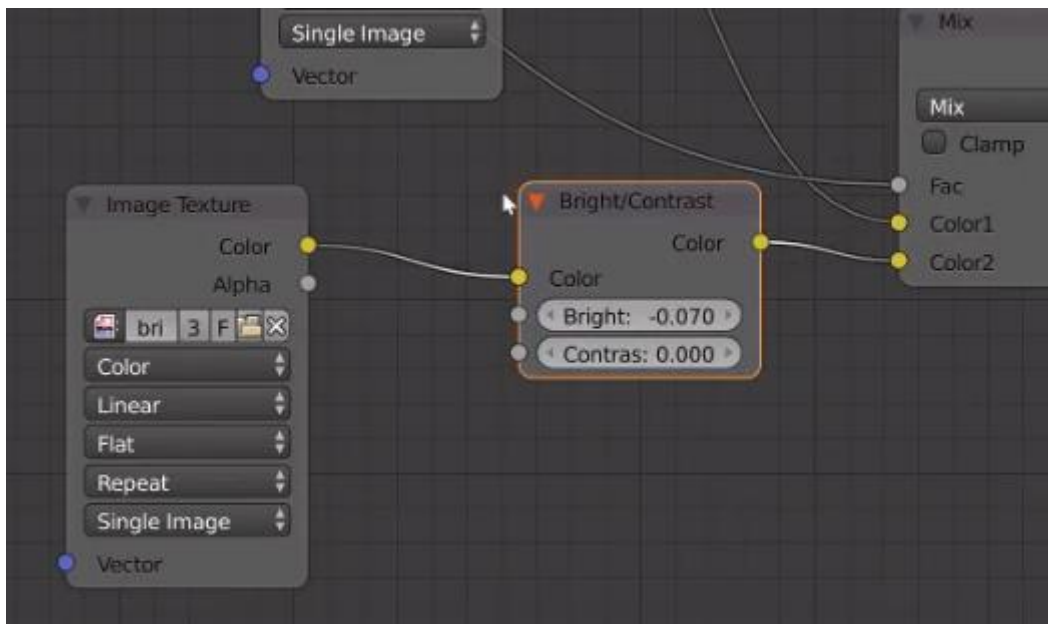
Click the orange arrow on the mix node to display its settings.



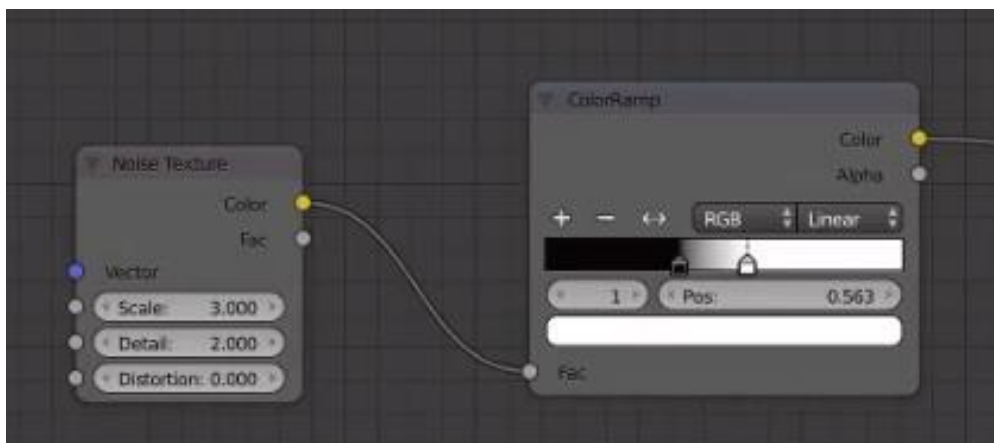
Add a color ramp and a noise texture in front of the two image textures. Connect them up to each other and the color ramps color output to the mix node fac input.



Add a brightness and contrast node between the second image texture and the mix node. Then set the brightness value to -0.07 to darken in slightly.

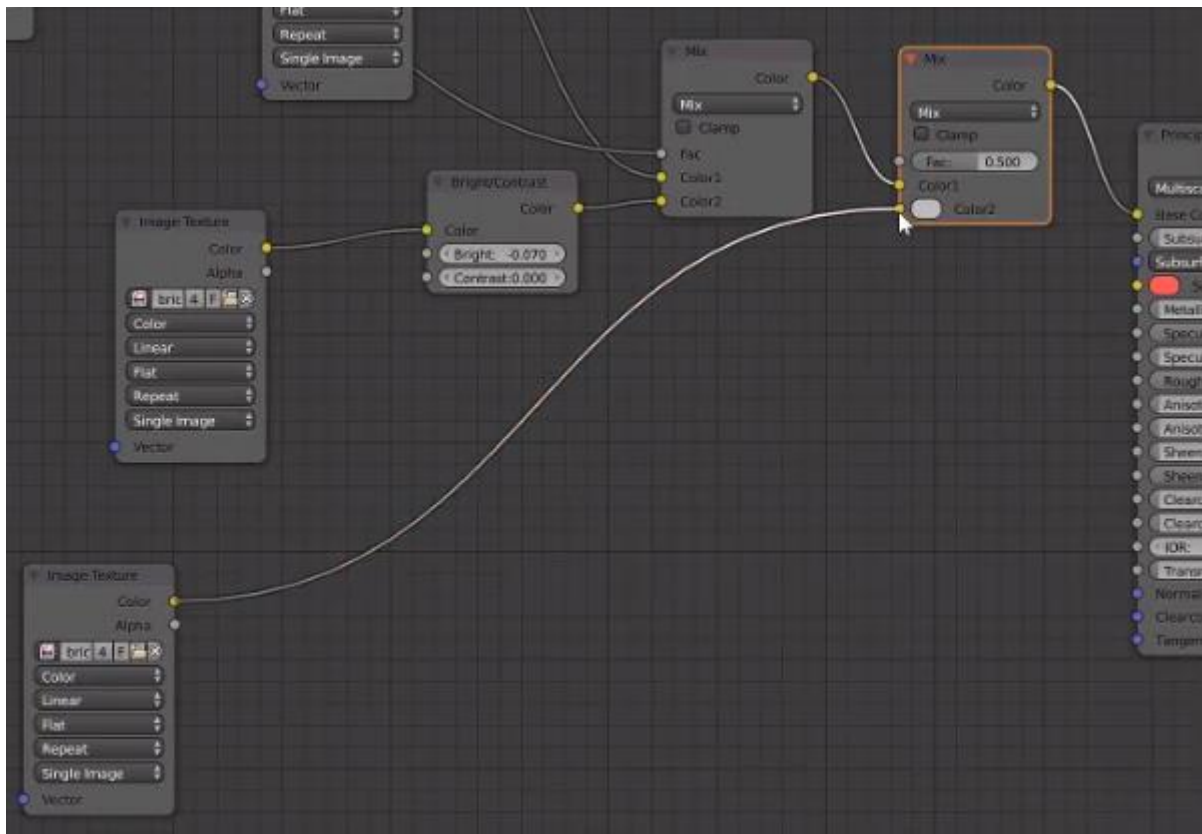


Now drag the two flags of the color ramp closer to each other so that we add higher contrast to the output of the noise texture. Then lower the scale on the noise texture to a value of 3.



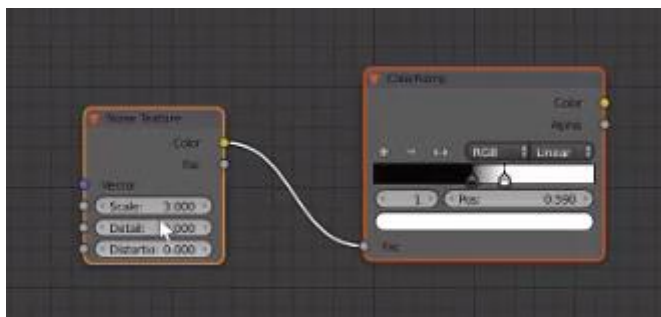
Keep adjusting the settings of the noise texture and the flags of the color ramp until you find a nice blend that you like.

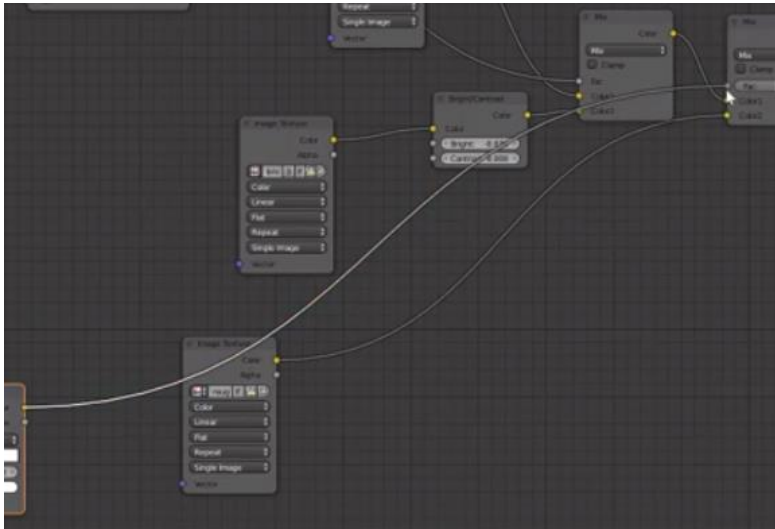
When you are happy with the blend we will add some plaster to the chimneys material. Duplicate one of the image texture nodes and put it below the other two image texture nodes. Also duplicate the mix node and put it behind the first mix node.



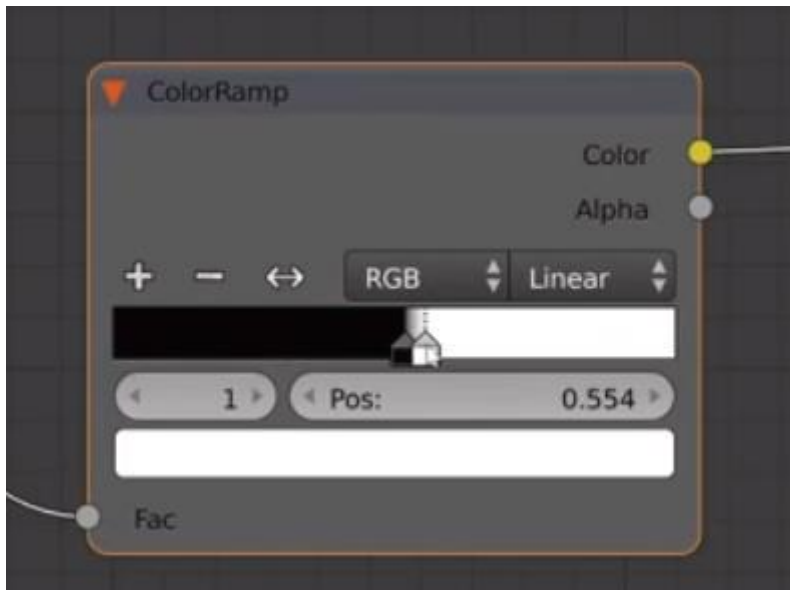
Open the image texture we just added and browse for the texture “rough_plaster_diffuse.png” that is included in the course.

Duplicate the noise texture and the color ramp and connect the color ramp to the fac input of the second mix node. Change the scale of the new noise texture to 2.

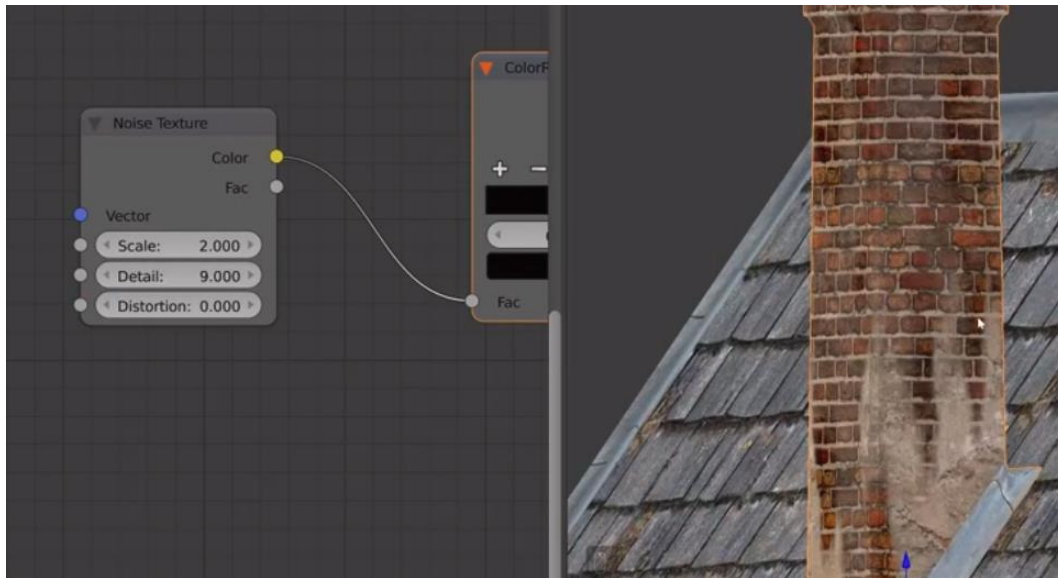




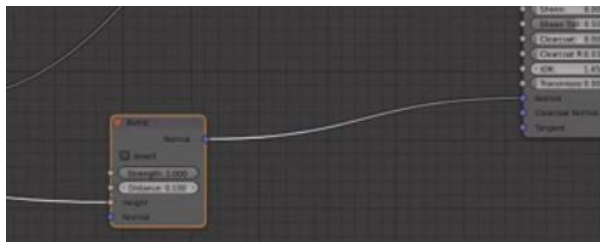
Sharpen the second color ramp a lot since we don't want a soft blend between two materials. When we mixed the bricks we mixed for color variation. Here we mix for material variation and in that case we need a tighter color ramp.



Raise the detail of the noise texture to 9 so that the edge between the two materials get a bit more detailed.



Now add a bump node and connect the second color ramps output to the height of the bump node and input the bump node into the normal input of the principled shader.



This concludes this lesson. On to the next one!